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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,255	12/08/2005	Anthony Hooley	117-549	8669

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EXAMINER	
TRAN, CON P	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,255	HOOLEY ET AL.	
	Examiner	Art Unit	
	CON P. TRAN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because of the following informalities:

Referring to Figure 3, reference sign - - 120 - - indicating microphone missing.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. **Claim 19** is objected to because of the following informalities: Claim 19 recites the limitation "said array of electro-acoustic transducers" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. For purpose of examination, examiner interprets this limitation as "an array of electro-acoustic transducers".

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-8, 10-18, 20-24, 27-28, 33, and 36-42** are rejected under 35 U.S.C. 102(b) as being anticipated by Hooley et al. WO 01/23104 (hereinafter, "Hooley"), cited by Applicants in IDS filed on 06/22/05.

Regarding **claim 1,** Hooley teaches *a set-up method for a loudspeaker system capable of generating at least one directed beam of audio sound, said loudspeaker*

system being in a room, said room comprising a listening position (see Fig. 22, page 45, lines 3-8, lines 25-26; page 62, lines 18-30), *said method comprising the steps of*:

emitting signals (i.e., test signal) *from the loudspeaker system into said room* (Fig. 27, page 50, lines 18-25; listening room, page 45, lines 3-8; page 58, lines 10-12);

registering said signals (by microphone 2201, see Fig. 22, page 45, line 25 – page 46, line 5) *and/or at least one of their reflections at one or more locations within said room* (directing different channels of sound in different directions so that the sound waves impinge on a reflective or resonant surface and are re-transmitted thereby, see page 41, lines 11-16; concert hall, page 42, lines 23-29; see Fig. 21, reflecting, page 43, lines 3-6; to appear to come from a wall, page 58, lines 10-12);

evaluating said registered signals to determine a first set of directing parameters for a future audio beam (by controller 2002, see Fig. 20, page 38, lines 22-27; model optimizing, page 45, lines 3-8; the control system then computes the optimum array parameters to locate a focused or directed beam at the position of the microphone, i.e., thereafter, see page 47, lines 2-9).

Hooley thus teaches all the claimed limitation.

Regarding **claim 2,** Hooley teaches the method of claim 1, further comprising: using said directing parameters to direct said beam of audio sound into the desired direction (thereafter the microphone may be removed; the separate remote sound

source will then emanate from the surface at the chosen location, see page 47, lines 2-9).

Regarding **claim 3,** Hooley teaches the method of claim 1, wherein said loudspeaker system comprises an array of electro-acoustic transducers (page 13, lines 3-8).

Regarding **claim 4,** Hooley teaches the method of claim 3, wherein each signal is emitted from a single electro-acoustic transducer in the array (page 13, lines 3-8).

Regarding **claim 5,** Hooley teaches the method of claim 2, wherein each signal is emitted from a plurality of electro-acoustic transducers in the array so that the signal is emitted in a desired direction (if desired, steer in the direction at right angles to each plane, see page 15, lines 4-7).

Regarding **claim 6,** Hooley teaches the method of claim 3, wherein different signals are simultaneously emitted from different electro-acoustic transducers (i.e., if multiple sources are used simultaneously, page 53, lines 13-17; multiple simultaneous beams, page 62, lines 24-25; see Fig. 22).

Regarding **claim 7,** Hooley teaches the method of claim 6, wherein the different electro-acoustic transducers are located at an edge position and/or the centre of the transducer array (see path 2206, Fig. 22, for triangulation, page 46, lines 1-5).

Regarding **claim 8,** Hooley teaches the method of claim 1, wherein the registering step includes the step of positioning at least one microphone in said room and recording the signals (by microphone 2201, see Fig. 22, page 45, line 25 – page 46, line 5) and/or at least one of their reflections using said at least one microphone (directing different channels of sound in different directions so that the sound waves impinge on a reflective or resonant surface and are re-transmitted thereby, see page 41, lines 11-16; see Fig. 21, reflecting, page 43, lines 3-6; to appear to come from a wall, page 58, lines 10-12).

Regarding **claim 10,** Hooley teaches the method of claim 8, wherein said microphone is physically positioned in/on the loudspeaker system (i.e., one or more of the microphones may be embedded in the handset, i.e., a component of the loudspeaker system; see page 44, lines 29-30).

Regarding **claim 11,** Hooley teaches the method of claim 1, wherein the evaluating step includes the step of determining the listening position relative to the location of the loudspeaker system (allows reproduction of multi-channel surround sound, see page 62, lines 19-22).

Regarding **claim 12,** Hooley teaches the method of claim 1, wherein the evaluating step includes the step of identifying multiple acoustic paths to the listening position (allows reproduction of multi-channel surround sound, see page 62, lines 19-22).

Regarding **claim 13,** Hooley teaches the method of claim 12, wherein the evaluating step further includes assigning different audio channels to different paths (allows reproduction of multi-channel surround sound, see page 62, lines 19-22).

Regarding **claim 14,** Hooley teaches the method of claim 1, wherein the evaluating step includes the step of identifying clusters of reflections in the registered signals (by creating "dead zones", page 45, lines 9-14).

Regarding **claim 15,** Hooley teaches the method of claim 1, further comprising using pre-known data relating to the geometry of the room (from architectural system, page 61, lines 20-22) to exclude beam directions (at undesired reflecting surfaces, creating "dead zones", page 45, lines 9-14).

Regarding **claim 16,** Hooley teaches the method of claim 15, wherein the pre-known data are provided by a human operator said method including the step of prompting for the input of said data (manual user input, see page 45, lines 9-14).

Regarding **claim 17,** Hooley teaches the method of claim 15, wherein the pre-known data are provided by a previous application of a set-up method (thereafter the microphone may be removed; the separate remote sound source will then emanate from the surface at the chosen location; page 47, lines 7-9).

Regarding **claim 18,** Hooley teaches the method of claim 1, wherein said evaluating step comprises recording the time elapsed between emitting the signals and receiving the first reflection at a location within said room (see Figs. 24, 25A-25F; page 48, lines 4-15).

Regarding **claim 20,** Hooley teaches the method of claim 1, wherein said evaluating step comprises determining the distance of surfaces from the loudspeaker system (i.e., relative position, see page 103, lines 21-23) by scanning a sound beam around said room (beam steering, see page 102, lines 28-29; see also page 42, lines 23-29; page 46, line 29 - page 47, line 9).

Regarding **claim 21,** Hooley teaches the method according to claim 1, wherein only a first predetermined portion of signals received are evaluated in said evaluating step (low amplitude, page 56, lines 12-16).

Regarding **claim 22,** Hooley teaches the method according to claim 1, wherein the signals emitted from the loudspeaker system are focused using said loudspeaker system such that the focus point is near to an estimated reflection surface (page 31, lines 24-29).

Regarding **claim 23,** Hooley teaches the method according to claim 22, wherein a feedback loop is used to provide that the beam focus tracks the estimated reflection surface position as the beam moves (page 42, lines 6-15).

Regarding **claim 24,** Hooley teaches the method according to claim 1, wherein at least one of said registered signals is multiplied by a phase shifted version of the emitted signal to which it corresponds so as to discriminate signals reflected by surfaces that lie a predetermined distance from the loudspeaker system (i.e., added to delayed input signal replicas being output, page 47, lines 17-19).

Regarding **claim 27,** Hooley teaches the method of claim 1, wherein the evaluating step includes determining the angle of reflective surfaces relative to the Sound Projector by analysing the time of receipt of a plurality of received signals, each representing the first reflection of a corresponding transmitted signal (i.e., the beam is angled by an amount dependent on the amount of systematic delay increase that

was used, see page 30, lines 28-30; time between outputting each test signal and receiving it at the input transducer, page 75, lines 10-13; delay coefficient, page 63, lines 1-3).

Regarding **claim 28,** Hooley teaches the method of claim 1, wherein the evaluating step includes determining the angle of reflective surfaces relative to the Sound Projector by analysing the relative amplitude of a plurality of received signals, each representing the first reflection of a corresponding transmitted signal (i.e., the beam is angled by an amount dependent on the amount of systematic delay increase that was used, see page 30, lines 28-30; time between outputting each test signal and receiving it at the input transducer, page 75, lines 10-13; sound energy, page 63, lines 1-3).

Regarding **claim 33,** Hooley teaches the method according to claim 1, wherein said loudspeaker system is a surround sound system intended for the playback of surround sound channels (page 60, lines 20-22).

Regarding **claim 36,** *Hooley teaches the surround sound system having a set-up function* (see Fig. 21, page 43, lines 3-6), said system comprising:

means for prompting a user to enter data regarding the room geometry and/or optimum listening point position (page 9, lines 8-10; from architectural system, page 61, lines 20-22);

means for recording the data entered by the user (page 9, lines 8-10; page 60, lines 11-15); and

means for determining the direction of emission of surround sound channels in accordance with the responses of the user (page 57, lines 2-6).

Regarding **claim 37,** *Hooley teaches the surround sound system having an at least semi-automatic set-up function* (see Fig. 21, page 43, lines 3-6; page 19, lines 13-14), said system comprising:

means for emitting directional beams of set-up sound signals (2703, 2705, Fig. 27, page 50, lines 18-25);

means for registering said signals and/or at least one of their reflections at one or more locations within the listening room (by microphone 2201, see Fig. 22, page 45, line 25 – page 46, line 5; listening room, page 45, lines 3-8; page 58, lines 10-12); and

means for evaluating the registered signals so as to obtain data useful in configuring the surround sound system (by controller 2002, see Fig. 20, page 38, lines 22-27; model optimizing, page 45, lines 3-8; the control system then computes the optimum array parameters to locate a focused or directed beam at the position of the microphone, i.e., thereafter, see page 47, lines 2-9).

Regarding **claim 38,** Hooley teaches the system according to claim 37, *wherein said means for evaluating signals comprises a signal processor that outputs the time of*

first reflection of a transmitted signal (see Figs. 24, 25A-25F; page 48, lines 4-15) *and/or the amplitude of said reflected signal relative to the corresponding transmitted signal* (i.e., the beam is angled by an amount dependent on the amount of systematic delay increase that was used, see page 30, lines 28-30; time between outputting each test signal and receiving it at the input transducer, page 75, lines 10-13; sound energy, page 63, lines 1-3).

Regarding **claim 39,** Hooley teaches the system according to claim 37, *wherein said system is configured to firstly determine the position of the major reflecting surfaces in the room* (page 42, lines 6-15) *in which it is located and thereafter to determine the directions in which the surround sound channels will be emitted* (if desired, steer in the direction at right angles to each plane, see page 15, lines 4-7; page 62, lines 7-11).

Regarding **claim 40,** Hooley teaches the system according to claim 37, wherein said system comprises an array of electro-acoustic output transducers for outputting directional sound beams (i.e., if multiple sources are used simultaneously, page 53, lines 13-17; multiple simultaneous beams, page 62, lines 24-25; see Fig. 22; sonic electroacoustic transducers or SETs 2205, see page 13, lines 3-8).

Regarding **claim 41,** Hooley teaches the system according to claim 37, wherein said means for registering reflections comprises at least one microphone (microphone 2201, see Fig. 22, page 45, line 25 – page 46, line 5).

Regarding **claim 42,** Hooley teaches the system according to claim 40, wherein said at least one microphone is positioned in said surround sound system close to said array of output transducers (see page 6, lines 16-18; vicinity, page 43, lines 28-30).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hooley et al. WO 01/23104 (hereinafter, "Hooley", cited by Applicants in IDS filed on 06/22/05), in view of Elko U.S. Patent 6041127.

Regarding **claim 9,** Hooley teaches the method of claim 8, wherein there are a plurality of microphones arranged in a known geometric configuration (sonic electroacoustic transducers or SETs arranged in two-dimensional array, see page 13,

lines 3-8; with triangular section SETs which tiles on the plane, see page 13, lines 15-18; where sections do not tile the plane, a close approximation to a filled aperture may be achieved by making the array in the form of a stack or arrays - i.e., three-dimensional, see page 13, lines 18-23).

However, Hooley does not explicitly specify to preferably arrange a tetrahedral configuration.

Elko discloses a microphone array which provides a steerable and variable response pattern (col. 1, lines 6-10) in which one good geometric arrangement is to place the elements at the vertices of a regular tetrahedron (i.e., a three-dimensional geometric figure in which all sides are equilateral triangles), see col. 13, lines 30-36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the geometric arrangement taught by Elko with the set-up method for a loudspeaker system of Hooley such that preferably obtain a tetrahedral configuration as claimed for purpose of providing a steerable and variable response pattern, as suggested by Elko in column 1, lines 9-10.

7. **Claims 19, 29-32, 34-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hooley et al. WO 01/23104 (hereinafter, "Hooley", cited by Applicants in IDS filed on 06/22/05)

Regarding **claim 19,** Hooley teaches the method of claim 10. Hooley further teaches wherein said microphone is positioned at or near the plane of an array of electro acoustic transducers (see page 6, lines 16-18; vicinity, page 43, lines 28-30).

However, Hooley does not explicitly specify said microphone is preferably positioned at the centre of said array.

Hooley further discloses microphone 2201 in Fig. 22 receives test signals from a small number of sonic electroacoustic transducers (SETs 2205) to deduce the microphone by triangulation (see page 45, line 25 - page 46, line 3). As shown in Fig. 22, the top right corner sonic electroacoustic transducers (2205) and bottom left corner sonic electroacoustic transducers (2205) are considered as an array; the array and microphone (2201) form a plane.

Therefore, it would have been obvious to try, by one of ordinary skill in the art at the time of the invention was made, to position the microphone at center of the array since there are a finite number of identified, predictable potential solutions (i.e. off center, center) to the recognized need (i.e., positioning the microphone) and one of ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success. The motivation is for purpose of achieving desired directional effect, as suggested by Hooley in page 13, line 8.

Regarding **claim 29,** Hooley teaches the method according to claim 1, wherein said evaluating step comprises analysing a change in received first reflection signal amplitude and analysing a change in time of first reflection (Fig. 21, page 43, lines 3-7;

time between outputting each test signal and receiving it at the input transducer, page 75, lines 10-13; sound energy, delay coefficient, page 63, lines 1-3).

However, Hooley does not explicitly specify so as to determine whether the reflecting surface is continuous, planar or curved.

Hooley further discloses positions where they are known to be undesired reflecting surfaces; creating "dead zones" (page 45, lines 9-14).

Therefore, it would have been obvious to try, by one of ordinary skill in the art at the time of the invention was made to have determined whether the reflecting surface is continuous, planar or curved since there are a finite number of identified, predictable potential solutions of undesired reflecting surfaces (continuous, discontinuous, planar or curved) to the recognized need (i.e., evaluating) and one of ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success. The motivation is for purpose of achieving desired directional effect, as suggested by Hooley in page 13, line 8.

Regarding **claim 30,** Hooley teaches the method according to claim 1. However, Hooley does not explicitly specify wherein the direction of signals emitted from the loudspeaker system is set to track detected discontinuities between reflective surfaces in the room.

Hooley further discloses reflecting surfaces (2101, Fig. 21, page 43, lines 3-7) of concert hall (page 42 lines 23-29); positions where they are known to be undesired reflecting surfaces, creating "dead zones" (page 45, lines 9-14).

Therefore, it would have been obvious to try, by one of ordinary skill in the art at the time of the invention was made to have included wherein the direction of signals emitted from the loudspeaker system is set to track detected discontinuities between reflective surfaces in the room since there are a finite number of identified, predictable potential solutions of undesired reflecting surfaces (continuous, discontinuous, planar or curved) to the recognized need (i.e., to track detected discontinuities) and one of ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success. The motivation is for purpose of achieving desired directional effect, as suggested by Hooley in page 13, line 8.

Regarding **claim 31,** Hooley teaches the method according to claim 30. However, Hooley does not explicitly specify wherein the direction of signals emitted by the loudspeaker system is caused to veer to one side of an estimated discontinuity so as to confirm the presence of said discontinuity in the reflective surfaces.

Hooley further discloses reflecting surfaces (2101, Fig. 21, page 43, lines 3-7) of concert hall, directing beam at those surfaces (page 42 lines 23-29); positions where they are known to be undesired reflecting surfaces, creating "dead zones" (page 45, lines 9-14).

Therefore, it would have been obvious to try, by one of ordinary skill in the art at the time of the invention was made to have included wherein the direction of signals emitted by the loudspeaker system is caused to veer to one side of an estimated discontinuity so as to confirm the presence of said discontinuity in the reflective surfaces

since there are a finite number of identified, predictable potential solutions of estimated discontinuity (directing the beam to the surface, off the surface) to the recognized need (i.e., estimating discontinuity) and one of ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success. The motivation is for purpose of achieving desired directional effect, as suggested by Hooley in page 13, line 8.

Regarding **claim 32,** Hooley teaches the method according to claim 1. However, Hooley does not explicitly specify wherein it is evaluated that there is a "hole" in the room surface in a particular direction when no signal is registered following an emission of a signal from the loudspeaker system and it is thereafter determined that audio sound signals are not directed towards said "hole".

Hooley further discloses reflecting surfaces (2101, Fig. 21, page 43, lines 3-7) of concert hall, directing beam at those surfaces (page 42 lines 23-29); positions where they are known to be undesired reflecting surfaces, creating “dead zones” (page 45, lines 9-14).

Therefore, it would have been obvious to try, by one of ordinary skill in the art at the time of the invention was made to have included wherein it is evaluated that there is a “hole” in the room surface in a particular direction when no signal is registered following an emission of a signal from the loudspeaker system and it is thereafter determined that audio sound signals are not directed towards said "hole" since there are a finite number of identified, predictable potential solutions of evaluating the surface

(receiving signal or no signal received) to the recognized need (i.e., evaluating) and one of ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success. The motivation is for purpose of achieving desired directional effect, as suggested by Hooley in page 13, line 8.

Regarding **claim 34,** Hooley teaches the method of claim 6. However, Hooley does not explicitly specify wherein the signals are emitted as spatially constrained beams of sound to a range of directions, the spatially constrained beams of sound being laterally constrained to form narrow vertical beams.

Hooley further discloses the amplitude control means (ACM) is conveniently implemented as digital amplitude control means for the purposes of gross beam shape modification (page 18, lines 18-20; page 22, lines 2-6); focus sound at point P (Fig. 16C; page 31, lines 18-29).

Therefore, it would have been obvious to try, by one of ordinary skill in the art at the time of the invention was made to have included wherein the signals are emitted as spatially constrained beams of sound to a range of directions, the spatially constrained beams of sound being laterally constrained to form narrow vertical beams since there are a finite number of identified, predictable potential solutions of shaping beams (constraining beam vertically, laterally) to the recognized need (i.e., constraining beams) and one of ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success. The motivation is for purpose of achieving desired directional effect, as suggested by Hooley in page 13, line 8.

Regarding **claim 35,** Hooley teaches the method of claim 34, wherein the spatially constrained beams of sound are laterally and vertically constrained to form narrow point or ellipsoidal beams focus sound at point P (Fig. 16C; page 31, lines 18-29).

8. **Claims 25-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hooley et al. WO 01/23104 (hereinafter, "Hooley", cited by Applicants in IDS filed on 06/22/05), in view of Lavoie et al. U.S. Patent Application Publication 20010038702 (hereinafter, "Lavoie", cited by Applicants).

Regarding **claim 25,** Hooley teaches the method of claim 1. However, Hooley does not explicitly discloses wherein at least one of said signals emitted by the loudspeaker system comprises a chirp signal, said chirp signal preferably reducing in frequency during its duration.

Lavoie discloses a surround sound system allowing automatic calibration and adjustment of the frequency, amplitude and time response of each channel (para. [0002]) in which the test signal is a frequency sweep or chirp signal [0041].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the surround sound system taught by Lavoie with the set-up method for a loudspeaker system of Hooley such that wherein at least one of said signals emitted by the loudspeaker system comprises a chirp signal, said

chirp signal preferably reducing in frequency during its duration as claimed for purpose of creating a more interesting or realistic listening experience, as suggested by Lavoie in paragraph [0003].

Regarding **claim 26,** Hooley in view of Lavoie teaches the method according to claim 25. Hooley in view of Lavoie, as modified, further teaches wherein a matched filter is used at the receiver to decode a reflected chirp signal so as to improve signal to noise ratio whilst maintaining adequate range-resolution (i.e., distinguishable using a correlation function, See Hooley, page 78, lines 7-9).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CON P. TRAN whose telephone number is (571)272-7532. The examiner can normally be reached on M - F (08:30 AM - 05:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, VIVIAN C. CHIN can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CPT/
April 27, 2010

/Vivian Chin/

Supervisory Patent Examiner, Art Unit 2614